"If war were declared to-morrow, what would we do for aircraft?"

AVIATION

MAY 7, 1923 Issued Weekly PRICE 10 CENTS

New Aerial View of New York City

VOLUME XIV

Number 19

SPECIAL FEATURES

LANDING FIELDS AND AIR TRANSPORT

AMERICA HOLDS MOST WORLD AIR RECORDS

PLANS OF FLYING COMPANIES FOR THE SEASON

U. S. AIR MAIL HAS FLOWN OVER 5,000,000 MILES

THE GARDNER, MOFFAT CO., INC.

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

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AVIATION

VOL. XIV. NO. 19

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CONTENTS

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L. D. GARDNER, PRESIDENT
W. D. MOFFAT, VICE-PRESIDENT
W. I. SEAMAN, TREASURER
GEORGE NEWBOLD, BUSINESS MANAGER

AVIATION

LADISLAS D'ORCY, EDITOR
VIRGINIUS E. CLARK
EDWARD P. WARNER
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Vol. XIV MAY 7, 1923 No. 19

Commercial Aircraft

ONE often hears it said that we have no real commercial aviation because there are no commercial aircraft in existence—to which others will reply that manufacturers will not produce real commercial aircraft until there is a demand for commercial aviation. All this would seem like a vicious circle, but the situation is not by any means as dark as some people like to paint it.

To begin with, it is very difficult to make two people agree on what is and what is not a commercial aircraft. For instance, to some a Mail DH is not a commercial aircraft—it is merely a converted war plane. To justify such a view, it will be pointed out that the Mail DH only carries from one to two pounds of pay load per horsepower as against four or five pounds for European air line machines. But what the critic fails to see is that the much vaunted European air liner, even if it be fast enough, has such a poor climb that it can hardly stagger out of an airport and that it has to operate at a few hundred feet altitude all along the route for lack of excess power. On our transcontinental airways such a performance would be out of the question, for a London-Paris air liner would not have ceiling enough to clear the mountain tops between New York and Cleveland, not to speak of the Rockies.

Furthermore, the standard mail plane used by the U. S. Air Mail Service has undergone so many transformations with respect to the original Army DH that the two types now only bear a very superficial resemblance. A stronger landing gear, oversized tires and a better balance—to mention but a few of the changes embodied in the Mail DH—made of the former "flaming coffin" a remarkably safe and efficient ship. For the purpose for which it is intended it is doubtful that a more appropriate type exists at the present time.

The latter remark applies to still another "converted war machine," the F5L flying boat, which the Aeromarine Airways is extensively and successfully using on its passenger services. Considering that a majority of the "Black Tail" air liners has been in commission for three years without being any worse for wear, it would seem as if these ships really had an unlimited life. Their operating record, on the other hand, furnishes tangible proof of the fact that careful inspection and efficient ground maintenance can insure a high degree of safety in operation.

Those who have flown in the big Aeromarine flying boats are agreed that they not only perform very smoothly in the air but also that they handle extremely well on the water, which is by no means a secondary consideration. As a matter of fact, neither here nor in Europe has there been developed a big flying boat that has the same all round usefulness as the F5L, and it seems doubtful that even a thorough redesigning would very materially improve its performance. Hence, while this type of flying boat is strictly speaking a converted war craft, it happens to be one which has proved uncommonly successful in its adaptation to commercial purposes.

This should not be taken to mean that efforts tending toward the construction of improved commercial aircraft are not desirable or praiseworthy. They are both, but development work entails great costs and manufacturers are naturally not over anxious to spend money on machines which answer the yet largely hypothetical requirements of air transport.

The truth of the matter is that we as yet have very little experience with practical air transport. Those that are gradually acquiring it through air line operation, like the Aeromarine Airways, are gathering very valuable knowledge and are paving the way for the improved air liner of tomorrow, which will be specially built in view of commercial requirements.

The Aeronautical Bulletin

AIRMEN all over the United States will hail the welcome news that the Airways Section of the Army Air Service has started publishing the large amount of useful information on landing fields which it gathered during the past three years.

It has been one of the great handicaps of commercial aviation that scant graphic information has in the past been available regarding the actual size, shape and approach of our permanent airports. "A sketch map tells me more in one minute than a verbal report in an hour," said Napoleon. This is particularly true about landing fields.

The landing field information which the Airways Section is now issuing under the title of the "Aeronautical Bulletin" and in loose-leaf form, so it will fit the log book, fills this long felt want. Each Bulletin contains, beside the necessary information as to facilities, two sketch maps, one of which gives the position of the airport with respect to the surrounding country, while the other is an outline map of the field.

The Aeronautical Bulletin will, we are certain, become an inseparable friend of all pilots. It will supplement but not supplant, the Notices to Aviators which the Hydrographic Office of the Navy Department issues monthly, and which contains much information of current value to airmen.

The appearance of this bulletin once more calls attention to the lack of landing fields that exists in certain sections of this country. The time seems ripe for a nation-wide campaign to enlist the help of municipalities and civic bodies in building up the national airway system. We believe that all aeronautical agencies should cooperate with this end in view.

"If war were declared to-morrow what would we do for aircraft?"

Plans of Flying Companies for 1923 Season

Activities Include Tuition, Passenger Carrying, Aerial Photography and Exhibitions

With the reopening of the flying season in the Northern latitudes it is believed of interest to give the readers of AVIATION *a brief review of the activities which are being prepared for this year by various civil air companies.*

The information which follows has been received direct from the companies concerned, and although it represents only a fraction of the activities which will actually take place, it offers a stimulating picture of American commercial aviation in 1923.—EDITOR

AMERICAN AIRCRAFT, INC.

Airplane, Motors, Supplies
Baltimore, Station F, Box 104
Stores, Dunkalk, Md

Aerodrome, Logan Field, Md
Robert J Stewart, President

Operations for 1922 consisted mainly of the manufacture and sale of airplanes and spare parts throughout the States and several foreign countries Much design and experimental work was done on new types of commercial aircraft to be introduced in 1923 Our operative work consisted of extensive photographing of the City of Baltimore and ot numerous industrial plants. Considerable aerial advertising, freight and passenger work was also accomplished

The officers of the company are Robert J. Stewert, President and Treasurer, and Geo. O Blome, Secretary Wm D. Tipton, Charles Masson, George Bohlman and Lyman Patterson were the pilots recording 100 per cent performance.

For 1923 the firm plans to put more stress on the new commercial planes and increased operative work, with the possibilities of a permanent aerial taxi service.

The shops and hangars of American Aircraft, Inc. are located right on Logan Field, five miles S E. of Baltimore, It is an all way field and well kept all year round We maintain complete repair and servicing facilities at all times

Interest in aviation around Baltimore is rather lukewarm The fault apparently lies with the layman and business man. Municipal and State authorities have been approached and have lent their support admirably but much of their power is limited by their knowledge that the layman is rather skeptical Hence our plans for 1923 are to keep planes in the air so the layman can see them and use them and never hear or read of accidents, which to him are of a superstitious nature so they may believe flying is safe and has commercial value

• • •

CLEVELAND AIR SERVICE

Coventry, Vt

Lt Walter E. Cleveland, Pilot and Manager
Ray N. Wilder, Mechanician

The Cleveland Air Service was started in the fall of 1921, using a Canuck with OX5 motor The few weeks experience that fall convinced me that prospects warranted the purchase of the best of equipment, so I bought from the Curtiss Aeroplane & Motor Corp at Garden City, L. I., a new Standard with Curtiss C6 motor I had this ship specially built with emergency gas tank in upper wing, three steps to front cockpit, removable front seat controls and adjustable staggered seats in front cockpit for two passengers, double instrument board, and baggage compartment back of pilot's seat.

In spite of a great deal of rain the past summer and the fact that I was taken sick the last of September and had to give up flying for the rest of the season, I carried over a thousand passengers and flew over 6000 miles, mostly in Vermont. Most of the passenger work was short pleasure rides in working small towns, although several passenger flights of from 30 to 150 miles were also made I also worked four county fairs and one or two field days with good results.

Beside passenger work considerable aerial photography was done, using a Demara Lapierre camera with Berthiot lens, which takes unexcelled 5 by 7 pictures I only gave one exhibition the past season, and am doing all I can to discourage stunt flying either for exhibitions or with passengers Any way you look at it, whether successful or not, stunt flying is a positive detriment to the acceptance of aviation by the public, and we've got to have the support and confidence of the man on the ground before we can hope for much accomplishment in the air

Standard plane with Curtiss C6 engine used by the Cleveland Air Service

I do all my own piloting and pride myself as having established a reputation as a safe, sane, and dependable pilot. Ray N. Wilder was my mechanic last year and I expect to have him with me again this season

While Vermont has been pretty thoroughly worked, not only by myself but also one or two other outfits, I plan to continue "barnstorming" to some extent the coming season, and possibly establish some sort of a running schedule between certain summer resort points Aerial photography has unlimited possibilities, and I am hoping to do quite a bit with that this Summer It's just a question of educating the public, and I think it can be done

I am fortunate in having on my own farm a field suitable as a small flying field. It is roughly 800 by 1200 ft., good firm, well-drained soil, and is located ½ mile west of Coventry village, and 5 miles south of Newport, Vt Suitable for Jennies Canucks, etc to land any time, but would not advise a fast ship to try it, although a DH4 did land there last summer Field has a steel, one-ship hangar, 55 by 35 ft., with wind-cone on top, located at southwest corner, facing N E Hangar has small work shop in connection, well equipped with small tools for ordinary repairs. I will be glad to cooperate with anyone flying up into my country at any time, and the field is open to any plane all the time. There are several fields suitable for fast ships to land on near by, and I will be glad to mark same for anyone letting me know in advance the time of the arrival

The sentiment in Vermont is on the whole, I think, favorable toward aviation. The Burke-Jones-Salisbury outfit of Randolph, Lt Johnny Woods of Buffalo, and my outfit have done all the flying in the state, except for occasional outsiders at fair time, and by maintaining a record of no accidents, and safe and sane flying have done great deal toward creating public confidence. Two bad accidents last fall,—one at Brattleboro in which three were killed, and one at Rutland which got Maynard and two others, shook people up a bit Most everyone, however, seemed to realize that both were entirely unnecessary, and in spite of the fact that both were within a short time of each other and right at fair time, I couldn't see that it affected my business very much. Ex-Governor Hartness is a great aviation booster, and has done a great deal to help flying in Vermont. Not only by his attitude has he influenced public opinion, but he has been of practical assistance in providing a first class landing field at Springfield, Vt.

• • •

CURTISS EXHIBITION COMPANY

Garden City, N. Y.

Officers—C R Keys, President; F H Russell, Vice President, J. A. B. Smith, Secretary and Treasurer; C. S. Jones, Field Manager

Pilots—W. H McMullen, John Andrews, J A Pearson, S. W. Cogswell; T. VanWagner, Chief Mechanic

This company operates from Curtiss Field at Garden City, N. Y., for the purpose of giving aerial service and flying instruction. The field is composed of eighty-two acres generally considered as a good four way field. Fourteen hangars with an average capacity of six JN's or Orioles.

The equipment in service during the year 1922 was as follows —

Four C6 Orioles	160 hp
One K6 Oriole	150 hp
One OX Oriole	90 hp
Two C6 Standards	160 hp
Three JN4D's	90 hp

This equipment spent a total of 50,723 min. (845 hr 23 min.) in the air covering an approximate mileage of 67,640.

As there is very little difference between the charges for the various classes of work an idea of the amount of each class of work done may be had from the following division of the income.

47 per cent of total income from paid flying was for photographic service.

23 per cent of total income from paid flying was for passenger service.

15 per cent of total income from paid flying was for instruction service.

7 per cent of total income from paid flying was for cross country passenger service

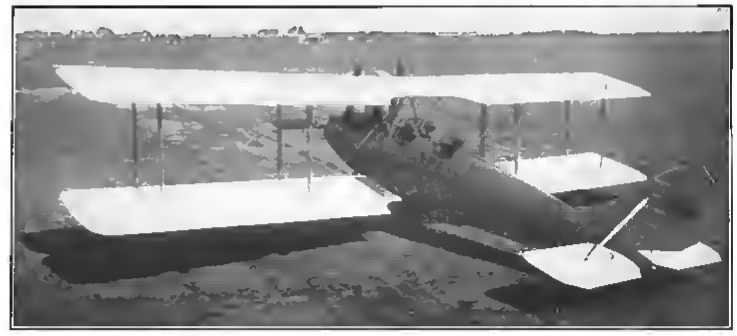
4 per cent of total income from paid flying was for renting ships for solo practice.

4 per cent of total income from paid flying was for miscellaneous flying service, i e, moving picture work, etc

Our part in aerial photography is to furnish ships and pilots for various aerial photo companies that specialize in the making and sale of aerial cameras and photographs. Some of the ships are so equipped that the large mapping cameras can be readily installed That is to permit other uses for the ship when not in photographic service. The equipment necessary for oblique photographs is so simple that it can easily be installed on any ship in a short time

"Photo flying" is not quite as simple as one might think It requires a skilled pilot to cover a photographic mapping job within the time allotted by calculation, the work is tedious and requires constant alertness It is also most important to have the best of cooperation between pilot and photographer To work for hours at a time at altitudes ranging from eight to fourteen thousand feet is no simple matter—either for pilot or photographer

Oblique photography also requires a fine cooperation between pilot and photographer The pilot must have some understanding of photography to do his best in this work as there is generally a special view to get of the object. Wind direction, position of sun, ground speed of ship, and position of the ship at instant of exposure must be understood by both pilot and photographer. The photographers skill in this work is most important and he should know the habitual traits of his pilot's manuevers.



Curtiss "Oriole" three seater used by the Curtiss Exhibition Co., at Garden City, N. Y.

Most of the photoflying required by the Fairchild Aerial Camera Corp'n. and Maj. Hamilton Maxwell, Inc. both of New York is done by the Curtiss Exhibition Co.

Passenger service was next in prominence of the years activities, furnishing almost a quarter of the business. Local cruises formally known as "short hops," of about fifteen minutes duration, were quite popular but a large portion of the passenger service was one, two, and three hour cruises. New York and vicinity has so many notable points of interest that we made special trips around the city, up the Hudson, and along the Connecticut shore. This service was charged for by the hour. The comfortable two passenger cock-pit of the Oriole proved a great attraction for passengers.

Cross-country passenger service was more in demand than ever before. The most popular trips were to Washington, D. C., Baltimore, Md., Philadelphia, Pa., Harrisburg, Pa., Atlantic City, N. J., and Hartford, Conn. Many trips had to be refused because of lack of Municipal landing fields.

The school of flying was in regular activity all season. The gift of a regular JN4D, less motor, was a great attraction to students and gave them a better idea of the responsibilities of a pilot and mechanic. Heretofore they had little to do outside of watching other mechanics but now they rig and equip their own ship under the guidance of an expert and test it with their instructor. The only cost in addition to the flying instruction is for the motor.

Many pilots have kept their feel of a ship by renting "solo" ships. These are regular JN's, rented to pilots of proven ability for solo practice in vicinity of airdrome. The fee is considered quite reasonable.

Most of the flying required in the production of motion pictures made by Cosmopolitan Production's Inc., Famous Players Inc., and Pathe Productions, was done at Curtiss Field. This class of work requires rather particular flying and is never twice the same.

The year's work was most encouraging, from every point of view. Of the many thousands of visitors at the field the greater majority came with a sincere interest in aviation. Spectacular, hazardous flying and stunts are prohibited at Curtiss Field with the result that clean cautious flying has proven as much an attraction for visitors as ever. It also helps to instill an understanding confidence in the minds of passengers and visitors.

* * *

EARL S. DAUGHERTY

School of Aviation and Passenger Carrying
Long Beach, Calif.

My main work consists of short sightseeing trips around Los Angeles County and instructing flying. My location on the main boulevard leading into Long Beach and inside the City limits makes my field ideal for the short joy rides. This last year I have carried over 2000 passengers. I do nearly all the flying myself as I figure doing the work myself is my cheapest insurance. My main pilot on rush days is J. W. Boyd who for two years was Civilian Flying Instructor in the U. S. Air Service.

My plans for this year are very indefinite, as my field is located in the edge of the Long Beach oil field and we expect to be drilling on this land some time this year. If luck and the oil stays with me my plans are to buy enough land some where close that I can open a flying field large enough to handle all the machines in this part of the country. After this year it will be next to impossible to get a tract of ground large enough for a big field that would be close enough to Los Angeles where aviation should be centralized.

My present field is owned by my father, C. J. Daugherty and the main runway is about 3000 ft. in length, making it one of the best and safest flying fields in Southern California. I have two hangars, the main one will hold six airplanes and has offices, machine shop, store rooms and mechanics living quarters. The other hangar will hold five ships. Also have a gasoline and oil station and get nearly all the trade from machines flying up from San Diego.

The sentiment of the business people of this town is "Let Daugherty do it"—they all boost, but we all need more than boosting. They all say that Long Beach has to keep my field but they will not get together and make plans for a new field as long as I have my field in operation.

I have had three very good flying meets here which has given Long Beach a great deal of publicity. The Air Spotting Division of the Pacific Fleet camped on my field for about two months with 14 DH's, 2 Vought and 2 JNH's. They had a complete camp with tent hangars for machines and tents for 30 officers and 100 men. This created a great interest in flying for some time.

At the present time, Capt. Leslie Tait-Cox is here with his SE5 and nearly every day is doing smoke writing in the sky for the American Tobacco Co. spelling the words Lucky Strike in the air. This is making every body sit up and take notice and is bringing thousands to the flying field.

There are about ten amateur flyers here with new JN4Ds just sold by the government and that makes the others around here want to get into the game.

My flying equipment consists of 180 hp. Spad, 160 hp. Nieuport, OX5 Polson Special-100 m.p.h., and four Curtiss JN4Ds.

* *

J. W. MILLER AIRCRAFT CORP.

Engineering Designing, Repairing,
Green Lake Station, Seattle, Wash.

Due to an unusually bad spring for flying, and also to the fact that we have been so rushed recently we have given but little attention to anything excepting the work in our shops.

The Sand Point aviation field, which is owned by King County was leased during the winter to the U. S. Air Service and while it is to be administered by the military forces, it is to be thrown open to all classes of legitimate users. Steel hangars to accommodate six machines are now in course of erection and will be put into service within the next month. While the entire tract comprises approximately 200 acres only about forty of it has been cleared, graded and seeded. This field is so situated that it will accommodate both land planes and sea planes and is pronounced by naval and military authorities as the finest location for an aviation field on the Pacific Coast.

The opening of this field to the public use will doubtless result in increased aerial activities in the Northwest, and particularly in the use of land type machines, as owing to the fact that this is a heavily wooded territory and there are but few landing fields the larger portion of the flying done in this territory has been with flying boats and seaplanes.

The Northbird Aviation Co., Messers Jones, and Duffy of Ketchikan, Alaska flew an MF boat from Seattle to Ketchikan last summer and are preparing for a busy season in Southeastern Alaska this summer.

A Boeing seaplane has recently been sold by the Navy to Dr. Devighne of Juneau, Alaska and another Boeing seaplane was sold last summer in Anchorage, Alaska and the report is that it is to be flown there this summer. Incidently Alaska seems to be waking up to the possibilities of the airplane in solving its most important problem which is transportation.

During the past year the Sound Air Service Company and the Aerial Tours Co. have ceased operations, largely owing to the fact that landing facilities were not available for land machines.

Our Company has just completed, for M. D. S. Steenson of Yakima the conversion of a Boeing Model "C" Seaplane into a land machine by the addition of a DH type of landing gear. A model "A" Hispano Suiza motor was also installed in this machine. It is of interest to note that these changes improve the performance of the Boeing Model "C" machine quite appreciably, and also of interest that the extreme stagger and decalage combination of these machines permit a decided shifting of weights without materially altering its balance.

A great deal of interest has been acquired in all classes of flying by the Northwest Aeronautical Society, and there is a movement on foot at present to consolidate the old Northwest Aero Club with this Society.

One thing that is particularly noticeable is the change in the attitude of the public toward flying. The widely published reports of soaring machines appear to have disabused the public mind of the idea that the stopping of a motor in the air always results in a crash. Indeed, it would appear that the change might even result in too much confidence on the part of the public. However, the outlook is generally much brighter than it has ever been in the Pacific Northwest.

The Boeing plant has recently completed the contract for 200 Thomas Morse MB3's and are now rushing to completion the scout machine of their own design recently ordered by the Army Air Service.

* * *

MONMOUTH AERO CLUB

Monmouth, Ill.

C. W. Buchanan, President; B. E. Pinkerton, Vice President, Jas. C. Foster, Secretary, G. F. Seaton, Treasurer.

The field at Monmouth was established through the Curtiss Iowa Aircraft Corp. of Ft. Dodge, Iowa. During the time they were here the Monmouth Aero Club was formed to boost aviation, and our field.

Last August a bill of sale was given by the Curtiss Iowa Aircraft Corp. to the Monmouth Aero Club for all rights and title in and to the 2 place hangar with office and shop, also 1 K6 Oriole, 1 K6 Oriole cracked up, 2 JN4D's, a lot of supplies and spares. Allowing for the possibility of complication a four month period was allowed to elapse before any especial effort on our part was put forth, but we now have at the Field a fine hangar in good condition, with gas, oil, water etc. etc. there for transient ships at all times.

Shirley Short standing beside the Brèguet he was flying when he was chief pilot of the flying field at Monmouth, Ill.

During the winter we have practically closed the field so far as active flying is concerned. We have our mechanic, getting the ships in trim, and have added a 4-passenger Brèguet purchased from W. A. Yackey of Chicago so that we can take care of almost any passenger business that comes along.

A new Corporation was organized and incorporated to operate the field as the Club was incorporated as a non-profit organization. We are now termed the Mid-West Airways Corporation, which is owned and operated by business men of this City, and capitalized for $25,000.00 about half of which is issued.

The past year was very successful so far as the actual operation of this field was concerned, a number of students were graduated, and a large passenger business was carried on from the field to all points. Scheduled trips were run weekly between here and Chicago, and we had good business. The receipts were sufficient to cover expenses of operation. June 15, 16, and 17 we held the Mid-West flying meet.

Officers of the Mid West Corporation are as follows: I. F. Dams, President, F. B. Pattee, Vice President, C. W. Buchanan, Sec'y and Treas., C. G. Jeaks, General Manager, Erle P. Field Counsel, Chester J. Smith, and Thomas Hewitt Directors. Pilots: C. I. (Deke) Sherwood and John Livingston. (Shirley Short is now with the U. S. Air Mail.)

Our plans call for active operation of the field, with a lot of cross country work in sight. We hold Curtiss sales representative contract. We expect to hold a meet again in June.

The field does not operate a high overhead outside of the rent as it is administered without cost, and the pilots are taken care of with other work in the winter.

* * *

NORTH CENTRAL AVIATION CO.

Marceline, Mo.

R. W. Shrock, Gen. Mgr.

The past year's business has been very successful considering the strikes throughout the country. Orders for supplies have steadily increased.

We are planning this summer to put on a flying circus of several ships, besides selling supplies, and we also will teach students. We flew all year without any accidents, not even knocking a propeller off. We own a landing field four miles Northeast of Marceline, Mo. and have the use of a landing field one mile north of Marceline. The field is a hard blue grass sod ½ by ½ mile, and ships can land and take any direction, no timber around.

The business people of this community speak favorably of flying and they would probably offer help toward a landing field.

* * *

ROBERTSON AIRCRAFT CORP.

5248 Oakland Avenue, St. Louis, Mo. operating St. Louis

Flying School, St. Louis Supply Depot,
Curtiss Sales Agency.

Mail Address, Anglum, St. Louis Co., Mo.
Hangars & Flying Fields, Municipal Field Forest Park, Lambert Field, at Bridgeton, Mo.

Wm. B. Robertson, President, Harry H. Perkins Secretary.

St. Louis is awakening and we expect big things for 1923. Our present Citizens Race Committee, who were instrumental in procuring the National Air Races for St. Louis are thoroughly aroused, and keen'y enthusiastic over the possibilities in aerial activity, and plan permanent improvements and lasting investments and assistance, which should bring this section to the fore, and keep it there, in things aeronautical.

Our own Company is a Missouri corporation, the entire capital stock of which is owned by its three officers, all of whom have been experienced and active in aeronautical pursuits for sometime. Our Bridgeton Field, where we are now permanently located, comprises 183 acres, in a wonderful valley, only 10 miles from St. Louis. We have our Superintendent living at the Field, thereby insuring 24 hr. service.

We maintain a complete stock of merchandise of all kinds, and are equipped to supply, or do, most anything required by airplanes or airplane motors.

We are now maintaining in flying condition, the following fleet of ships: One Sturtevant, five-passenger cruiser, equipped with 250 hp. Isotta Fraschina motor, one Curtiss Oriole 3-place, with 150 hp. Hispano; one Standard J1 Hispano three-place; one Curtiss "H", three-place, one canuck, and two JN4Ds.

We have a quantity of ships of similar design and manufacture at various stages of completion, several dozen various types of motors, several hundred spare wings of various types, and also a large stock of other airplanes and motors, parts and supplies.

We maintain an Aerial Mapping and Photographic Section, and shall be glad to supply you with airscapes of any activities or localities in which you might be interested.

• • •

UNITED STATES AIRWAYS

301-302 Omaha Loan Building, Omaha, Nebr.

The United States Airways is a million dollar corporation and because of its efforts landing fields have been established between Fort Worth, Tex. and Denver, Colo. and El Paso, Tex. and Kansas City, Mo. This syndicate is interested in promoting air fields and airways throughout the country and

Experimental station No. 2 of the United States Airways along the Mexican border

up to recently has been operating at a loss as it is not the intentions of the United States Airways to make money.

A subsidiary concern of the United States Airways is the General Commerce Co. with offices at 301-302 Omaha Loan Building and experimental field at Amerillo, Tex. and this company was incorporated in 1922 for the purpose of promoting the Ferdon patents. These patents consist of a means of balancing an aircraft automatically, a means of making an aircraft go in a given direction, and radio control means of aircraft. The company plans during the forthcoming year to place several of these new type airplanes on the market.

The inventor of these devices William S. Ferdon is associated both with the General Commerce Company and U. S. Airways whose directors are Philip J. Ahern, Minneapolis, Wendell F. Foster, Chicago, Carlton P. Swiler, Omaha, Samuel C. Mann, Houston, Tex. and William S. Ferdon, Sheridan, Wyo.

WALTER T. VARNEY

Bristol and Varney Standard Airplanes and Broadwick Parachutes. Instruction, Special flights, Photography.

839 Post Street, San Francisco, Calif.

Airdrome, San Carlos

We have just started an express line between San Francisco, Modesto and Stockton. While this is still in the experimental stage and far from being on a real paying basis, we have every confidence that it will be a successful venture, we are having new shippers each day and also have several good houses contracted for a specified poundage to be shipped during the month. This line is creating some interest, inasmuch as we are the first Airplane Express throughout the Valley towns, and we are hopeful of extending the line through the entire State. We have been running only since Sept. 7, and can see where much money and time is being saved shippers by making use of the Airplane Express.

We also conduct a Flying School at our Beresford Field, where we have first class Field, Shops and Hangar space for our own ships and storage room for visiting ships. Only first class equipment is used for training purposes, and competent instructors and mechanics are employed.

We build and re-build ships, and carry a full line of parts for motors and planes. Our field is a service station to airplanes. In connection with the above, we carry on an Airplane Taxi Service, with planes ready at a moment's notice.

Aeronautical Patents

Granted April 17, 1923

1,451,830 Aerial Train. Wayne Elliot Ikerman, Long Beach, Miss., assignor of forty one-hundredths to Bernhard Reinke and five one-hundredths to Frederick Ikerman, both of Long Beach, Miss.

1,452,060 Rudder and Elevator Assembly For Aeroplanes. Osmond Theron Belcher, Los Angeles, Calif., assignor to Belcher Aerial Mfg. Co., a corporation of California.

1,452,071 Aeroplane Assuring Automatically the Lateral and Longitudinal Stability. Joseph DeHouck, Thielt, Belgium.

1,452,220 Balloon Envelope Material and Process of Manufacturing the Same. Erich Trenckmann and Bruno Trenckmann, Berlin-Tempelhof, Germany, assignors to B. G. Textilwerke G.m.b.H., Berlin-Tempelhof, Germany.

1,452,348 Aeroplane Safety Appliance. Frank J. Matoushek, Prairie du Sac, Wis.

1,452,485 Gyroscopic Compass. Harry L. Tanner, Brooklyn, N. Y., assignor to The Sperry Gyroscope Co., Brooklyn, N. Y.

American Gliding Competition

The first international soaring flight competition to be held in the United States will take place between July 10 and Aug. 15 on the Pacific Coast. Oakland, Calif. will be awarded the meet by the National Aeronautic Association, provided the city will raise its offer of $5,000 to $10,000 in prize money to the contestants. San Diego, Calif., is also a contender for the competition and beside offering ideal conditions for glider experiments, promises to put up necessary prize money inducements. Capt. E. V. Rickenbacker has donated a valuable trophy for the contest.

The Soaring Flight committee of the N.A.A., Orville Wright, chairman, after considering the claims of many localities for the glider contest, decided that Oakland offered the right conditions at Berkeley, northeast of the city, which has an unobstructed slope of three miles. This terrain has been successfully used for test with a glider weighing 510 lb. Wind and weather conditions at Berkeley average as near perfection as is possible to find anywhere in the country.

Some Marginal Remarks on Air Transport

With Special Reference to Landing Fields

By Ladislas d'Orcy

It is an all too common belief among people who hold sensible views on aeronautical questions that little time is gained by using the airplane for distances of less than a hundred miles. Because railroads offer a fairly rapid means of travel for short distances out of the big cities, it is frequently argued that the airplane cannot compete in this field with the rail. People will grant the usefulness of the flying machine for going from New York to Chicago in eight or nine hours, but they do not as readily see that by an one can reach various places lying within a comparatively short radius from a city in about one-tenth the time the best rail and water transit affords.

The saving in time is not very great where one flies from a city to a place fifty miles away, but where instead of one town or village it is desired to reach two, three or four, and all lying within a fifty mile radius from that city, the gain in time becomes tremendous, for it increases somewhat like the square of the distance.

The reason for this peculiar phenomena is that railroad service between a city and the single suburban centers is generally excellent, while communications between the various suburban centers are as a rule very poor. Often interurban service is so circuitous and badly timed that the shortest way between two places lying say on the periphery of a fifty mile circle is to ride back to the city and there take a tram out again to the next place. Anyone curious to find this out for himself may map out a trip between Manhattan, and three places lying in New Jersey, Staten Island and Long Island, respectively. The experience is highly instructive.

How the Airplane Saves Time

Now the airplane is the one means of travel which overcomes these difficulties of ground communication. Where the railroad travels in curves and detours, the airplane flies straight as an arrow—it saves time. Where the railroad train travels at 40 m.p.h., the airplane travels at 80 or 100 m.p.h.—it saves more time and much of it. And where there is no direct railway line between two places, the airplane just flies over the intervening space—and again it saves much precious time.

Perhaps this presentation is somewhat idealized. Of course, it is predicated upon the existence of numerous landing fields and of airplanes having a fairly low landing speed. Given the latter, the landing fields need not be extravagent in size and their initial cost and maintenance will be moderate. A landing speed of 50 m.p.h. may be all right for air liners which operate over well organized airways, but an aerial jitney or "taxiplane" should be capable of landing at not more than 25 or 30 m.p.h., so that in case of need it could be "sat down" in the smallest possible field.

This is by no means a revolutionary requirement, for there already exist airplanes with this low speed and with a high speed of 80-90 m.p.h. which will carry a pilot and in some cases a passenger on from 50 to 60 hp. The U. S. Messenger, built by the Sperry Aircraft Co. to the designs of the Engineering Division of the Air Service, and the Farman "Sport" are typical examples of this class.

It may then be asked why there is no real demand for this kind of ship. The chief reason—which is the Alpha and Omega of civil air transport—is landing fields. Not merely landing fields thrown up in any old place, and generally in the most outlandish sort of place, with four wheezy trains running to it per day, but landing fields centrally located and within reach of telephone, telegraph and high speed transport.

The high cost of real estate will often make this requirement a problem difficult to solve. Yet it must be solved if we are to make of air transport a success.

Boston's Achievement

One great American city already realized this truth—not New York, nor Chicago, nor Los Angeles, but Boston. Like many other cities Boston was afflicted with a flying field which demanded considerable doggedness and moral fortitude to be reached from the city. Whereupon some public spirited citizens got together and started a powerful agitation to have the city appropriate a sum for equipping as an airport some reclaimed land lying right in the center of Boston harbor. We may rest assured that this movement did not progress without encountering opposition. City administrations are not, as a rule, overanxious to spend perfectly good money on such incredible projects as municipal landing fields, particularly when civil aviation is too largely represented by wing walkers and parachute jumpers in flaming red tights. But our Bostonian friends somehow or the other knew how to break down the opposition and today gangs of workmen are busy leveling the Boston Flats, erecting hangars, laying out runways and introducing on that former mudbank all the niceties of a well equipped airport. By next summer Boston will be able to pride herself on having the first centrally located airport in the United States.

What Boston accomplished New York can too. We have mentioned before in these columns the good work done by the Merchants Association in carrying a resolution in favor of turning Governor's Island into an airport. Before the war there was a landing field on the island, with a hangar which the New York National Guard used for training purposes. That was also where Miss Ruth Law landed after her remarkable one-stop flight from Chicago via Hornell, N. Y., in 1916. Then the war came, and the landing field was entirely built over with storage houses. These have now been partly dismantled, but the future use of the former landing field is still in abeyance.

In the matter of size Governor's Island is not very large, the actual area available for landing being only three quarters by half a mile. However, this could easily be increased and in precisely the same manner as the island was originally enlarged—namely by utilizing the thousands of tons of rock extracted from the subway excavations. Construction on the Staten Island subway has just begun, and if some action is not taken soon, all this material will be carried out to sea on lighters and dumped over board.

An Ideally Situated Airport

Insofar as its location is concerned, Governor's Island is ideally situated, being in the center of New York harbor, within ten minutes ferry ride from the battery and with the prospect of a subway station on the line now under construction. Furthermore, even if the area of the island should be trebled or quadrupled, it would not in the slightest manner interfere with navigation in the harbor, as a glance at a map will readily show.

This question of interference with harbor traffic deserves serious consideration, on the score of convenience as well as of safety. Two or three seaplanes maneuvering on the Hudson or the East River are hardly a hindrance to shipping or to one another, but a dozen or two machines taxiing up and down the river, taking off, and coming down to a landing would be a totally different proposition. Upper Bay, off Governor's Island, is wide enough to enable a good many seaplanes to maneuver there in all directions without being in the way of one another or of shipping. Furthermore the island could be used as a terminal for both land and water machines, which is obviously an ideal condition for effecting quick transfers from inland air lines to coastal air lines, not

to speak of the publicity value of an airport in full view of the business section of New York.

On Flying over New York

But outside of all these considerations, there is one which is of primary importance to aircraft operating in and out of New York, and that is that Governor's Island would offer a safe landing field just where it is most needed. This was vividly brought to the writer's attention the other day when he was flying over the city in a Curtiss Jenme piloted by C. B. D. Collyer of the U. S. Air Mail Service. We had left Curtiss Field at Hempstead, L. I., to pay a visit to the Aeromarine plant at Keyport, N. J., where an excellent one-way landing field 1800 ft. by 400 ft. was recently laid out. After a visit to the huge establishment under the able guidance of Paul Zimmerman, engineer in charge of the Airplane Department, in the course of which the new Aeromarine metal flying boat elicited much deserved admiration, which was topped off with a hearty meal, we started back for Mineola. The weather had been pretty thick all morning and by the time we were over Coney Island we could see big banks of fog rolling in from the sea. Over Brighton Beach we got into this thick of it, and Pilot Collyer decided he would make a try the other way round, that is, reach Mineola from the North Shore, by way of Flushing Bay. In the meantime his passenger was attempting to recall some good emergency fields in the neighborhood. A few years back Sheepshead Bay had a fairly flat oval surface in the middle of its autodrome, from which a Swiss flier was giving acrobatic exhibitions on a little Blériot monoplane. And the passenger wondered if someone had improved that oval by running a picket fence across the middle of it. But all these thoughts which chased each other with cinematographic rapidity, were in their turn chased away when we left the fog banks behind.

As the fuel supply was getting low, Pilot Collyer took the ship back part of the way we had come and landed at Miller Field, Newdorp, S. I., where a squadron of the N. Y. National Guard occupies palatial steel and cement hangars. After having had the tanks filled through the courtesy of the commanding officer of Miller Field, we took off again, heading this time straight for Manhattan and climbing to the minimum altitude of 2000 ft. prescribed by the city ordinance. This ordinance was passed so airplanes would not, in case of engine trouble, land on top of a skyscraper but glide down to a safe landing. The city fathers only forgot to specify where that safe landing would be. The best that could be done in that case would be to land the machine either in the Hudson or in the East River, which might be only relatively safe for a land machine and would in any case entail a lot of expensive salvage operations and repairs. Just then the passenger happened to look down on Governor's Island, with its half dismantled battle grey sheds, and there was no better location for an airport for miles around.

In the meantime the Jennie was faithfully pushing her nose against a wind that was coming in from the ocean with a vigor that gave a telling illustration of the difference between air speed and relative speed, for at times we were practically standing still. And by the time we had fought our way up to Flushing Bay, we once more met the fog bank we had left at Sheepshead Bay. Down on the slate grey waters a forlorn looking HS flying boat was pulling on her moorings. She was painted the artistic color scheme of the new "L" trains and was evidently a newcomer to this neighborhood.

There was no use in persisting in the face of that fog. It had the consistency of cotton and seemed to extend in solid layers for miles. Fortunately a fairly good landing field was known to be near—Hasbrouck Heights, N. J., the home of the Witteman Aircraft Corp. and the Chamberlain Aircraft Co.—and it was there that Pilot Collyer headed the trusty Jenme and landed her as smoothly as if he had always known that field. As a matter of fact, he had never been there before, nor at the Keyport field. But that is another story.

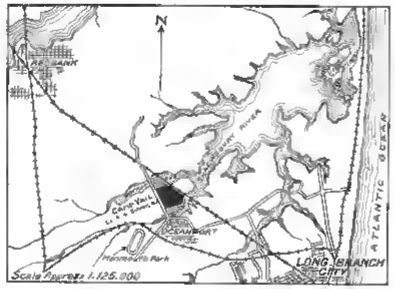
Thus ended the trip which forcibly demonstrated that New York City is in bad need of an airport where ships flying over the most thickly populated sections would find a safe landing place.

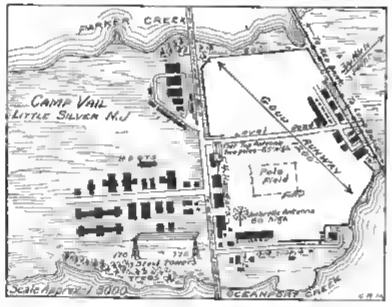
Landing Field Information

Important Notice

Information of value to commercial as well as Army and Naval pilots is now being published in loose-leaf form by the Army Air Service under the title of "Aeronautical Bulletin," which is issued several times each month through the Government Printing Office, at Washington.

The data being released in this form includes information on landing fields, government, commercial and municipal. To date eight numbers have been published, as follows: No. 1, Moundsville W. Va., No. 2, Air Mail field at Iowa City, Iowa; No. 3, the Curtiss Eastern Aircraft Corp., Field Pine Valley, N. J.; No. 4, Little Silver Field, Camp Vail, N. J., No. 5,





Sketch maps of Camp Vail, Little Silver, N. J. (actual size) published in the Aeronautical Bulletin of the Aircraft Section, U. S. Army Air Service.

Wallace Aircraft Co. Field, Davenport, Iowa, No. 6, Army Field, at Fort Reiley, Kan.; No. 7, Logan Field, Baltimore, Md.; and No. 8, Municipal Landing Field, Hartford, Conn. All told thirty small leaflets have been prepared by the Air Service, all of which are now in press.

The data printed shows the class of field, its location, description, signals and markings, accommodations and facilities, and communication lines, as well as certain meteorological information. Besides a sketch map or aerial photo of the field, details of the surrounding country with land marks are also shown.

The type of sketch maps which the Aeronautical Bulletin publishes is shown above in actual size, from which it will be seen that the information is of sufficient detail to be of practical value to airmen.

Subscriptions should be made to Superintendent of Documents, Government Printing Office, Wash., the charge being temporarily fixed at 5 cents.

"If war were declared to-morrow what would we do for aircraft?"

The Combined Coast Artillery–Air Service Exercises

Held at Fort Monroe in October and November, 1922

The Secretary of War has approved the report of the Board which observed the Coast-Artillery—Air Service Joint Training Exercises at Fort Monroe, Va., during October and November, 1922, and has directed the Chief of Coast Artillery and the Chief of Air Service together to proceed with the drawing up of a tentative instruction manual for guidance in combined Coast Artillery and Air Service exercises, as recommended by the Board.

The Board observed the results of a series of ten typical major operations, each of which constituted a problem in the combined use of Coast Artillery and Air Service elements. The salient features in their conclusions relative to these problems, are as follows:

Locating and Reporting Hostile Craft

I. The Air Service can locate and report the approximate position, direction, and speed of hostile ships, and inform shore stations of appreciable changes in such data, provided that uninterrupted two-way radio communication is maintained, and that visibility is at least fair.

II. This information is not only valuable for giving warning of the apparent intentions of hostile fleets, but also for placing initial shots and later correction of firing data to bring successive shots effectively near their targets.

III. The radio direction finders are not yet developed sufficiently to be effective, but the result of their use justifies extensive investigation and development in the future.

IV. The present development of radio permits the use of about six planes working simultaneously with as many ground stations in a single locality. If greater numbers are used the interference of wave lengths is excessive.

V. The order of accuracy of various spotting agencies (location of targets and direction of fire) is believed to be as follows: Flank spotting from ground stations; spotting from airplane, vertical spotting from ground stations; captive balloon spotting.

Smoke Bomb Should Be Developed

VI. The projection of effective smoke screens by the Air Service is dependent largely upon atmospheric conditions. The present smoke bomb is very imperfect and should be developed.

VII. The accuracy of fire of the Coast Artillery batteries was highly gratifying.

VIII. The results of the bombing by the Air Service were very gratifying although the exercises were not comprehensive enough to determine the effect of altitude upon the accuracy of bombing. The bombing devices must be developed to a greater extent of reliability.

IX. Artillery fire can be satisfactorily conducted by the use of airplane data alone, when visibility from shore stations is interfered with by any cause, provided two-way radio communication is assured.

Firing at Aerial Targets

X. Anti-aircraft fire can be conducted with accuracy upon aerial targets towed by airplane, without danger to the pilots of the planes. This practice promises excellent development for anti-aircraft elements.

In addition to the above specific conclusions the following general conclusions were reached:

A. The exercises were not sufficiently comprehensive to determine the relative efficiency of seacoast gun attack and aircraft attack upon naval targets within gun range. Both have exceedingly great value and should be used in cooperation.

B. Hostile ships can probably jam our radio communication, but by so doing they would also seriously interfere with their own vital radio communications. Our planes could then probably act at shorter ranges with effectiveness.

C. Anti-aircraft artillery fire can be conducted with accuracy.

D. Both Coast Artillery and Air Service are essential to successful operation of coast defense.

The Board also made general recommendations for the joint and separate training of the two arms, and also for the provision of grid maps and marking buoys for use of aerial observers at all of our Coast Defenses.

Some Deficiencies

In commenting upon the report of the Board, the Chiefs of Coast Artillery and Air Service agreed that the exercises indicated certain weaknesses of or deficiencies which should be corrected, as follows:

Both services lack trained aerial observers.

There is a lack of expert radio personnel.

Observers lack familiarity with the hydrography of our defensive localities.

There is a lack of suitable beacons or other markers for aerial observers.

Close liaison between Artillery and Air Service units assigned for cooperation, is lacking.

Both services are provided with insufficient material.

A few of the detailed conclusions of the Board are disagreed with by the Chief of Air Service, who feels that the exercises were not sufficiently comprehensive to give definite conclusions. In general, however, the Chiefs of both branches are in agreement in their comments upon the combined exercises. It is their belief that only through cooperation of the services will come effectiveness in coast defense, and that early steps should be taken to draw up the tentative manual of instruction, already recommended by the Board and directed by the Secretary of War. Both agree that more detailed and thorough experiments are necessary to determine definitely the proper inter-relation between the two branches.

Belgium as an Aircraft Market

Belgium at present offers no market for American made airplanes owing to the fact that the only buyer now is the Ministry of National Defense, which it is believed will continue to make its purchases in France.

One attempt was made to enter the field of commercial aviation through a Government-subsidized company, but activities ceased in 1922, although the organization still exists. Belgian interests also attempted to organize a local aircraft industry with the support of the Government, but to date this company has confined its activities to repair work on existing planes, Leigh W. Hunt, Commerce Secretary at Brussels, reports.

National Balloon Race

Definite and final arrangements have been made with the Indianapolis Chamber of Commerce and the Aero Club of Indianapolis to conduct the National Elimination Balloon Race from that city on July 4, 1923, according to Col. F. P. Lahm, Chairman of the Contest Committee, National Aeronautic Association. The race will be for free balloons of the fifth category (2200 cubic meters capacity or less) and will be held in full accordance with F.A.I. rules and regulations.

U. S. Air Mail Has Flown 5,000,000 Miles

Consolidated Statement Covering 55 Months Shows 90.4 per Performance for this Period

Five million miles through the air is sum total of the activities of the Air Mail Service of the Post Office Department, since its inauguration May 15, 1918 to Dec. 31, 1922. At the present time the Air Mail Service is flying on a schedule estimated to require nearly 2,000,000 miles a year, as it is estimated that the postal planes are rapidly winging their way to the 6,000,000 mile mark.

90 per cent Performance

The consolidated statement for five years of operation of the Air Mail Service just issued by Postmaster General New also reveals that the percentage performance during the whole period is 90.39, a relatively high figure. Of the 5,281,823 miles flown up to Dec. 31, a total of 4,623,115 miles was traveled with mail.

The Air Mail Service since its installation has cost the report shows $4,295,967.69. Much of this expense has been for permanent improvements such as repair shops, development of landing fields, and the creation of a reserve ship supply. In their flights running into millions of miles the mail pilots have carried 160,473,600 letters. That this number will increase rapidly is indicated by the fact that for last year alone planes carried more than 60,000,000 of that total.

More than one third of the trips undertaken, 8,373, were made in rain, snow, hail or fog; 14,704 trips in five years operation were made in clear weather. Although the pilots were compelled to make 3,088 forced landings, the yearly total was cut from 1,473 in 1921 to 573 in 1922. This improvement is credited to the increased skill on the part of pilots and a rigid inspection system for planes.

The percentage performance is gradually creeping higher and higher as the Air Mail Service becomes established. In 1918 the percentage was 94.09, but neither this nor the year following were representative years since only the short line between New York and Washington was in operation. In 1920 when the activities were gradually spreading out and the transcontinental route was embarked upon, the performance, that is, the number of trips completed in comparison to the number scheduled, fell to 78.04 per cent. In 1921 it rose to 92.84 per cent, and in 1922 it was 95.52 per cent. During ten weeks of last summer the schedule was maintained 100 per cent perfect.

Services Now Maintained

In addition to the transcontinental route, air mail service is now maintained between Havana, Cuba and Key West, New Orleans and Pilottown and Seattle and Vancouver. The New York-Washington route was maintained until May, 1921. St. Louis to Chicago, and the Chicago to Minneapolis runs were started in 1920 but they also were discontinued in 1921, leaving only the transcontinental service, New York, Chicago, San Francisco, which was established Sept. 8, 1920, in operation over land. The transcontinental route is maintained directly by the Post Office Department, while the Key West, Seattle and New Orleans services are operated under contract. The Key West to Havana service is run by the Aeromarine Airways, the Seattle to Victoria service by the Hubbard Air Line, and the New Orleans-Pilot Town service by Mr. Rudick.

In connection with the consolidated statement for nearly five years of operation of the Air Mail Service, the Hon. M. Clyde Kelly, Member of the Committee Post Offices and Post Roads in the House of Representatives, has paid a fine tribute to this great American achievement. In a statement issued through the National Aeronautic Association of U.S.A. Mr. Kelly said in part as follows:

"No language can be extravagant in expressing the marvelous record of our Air Mail. Language is a poor vehicle because one can not hope indelibly to impress upon the minds of the people and especially the consciousness of our men and women whose activities are making this nation great, the stimulating facts of the Air Mail. Words do not suffice to prove that with the Air Mail this country has grasped the palm of world leadership in this new phase of air transportation. I wish it were possible to grave upon every active mind these facts:

What the Air Mail Accomplished

In four years and seven months the Air Mail Service made 90.39 per cent of all deliveries.

Flew through fog, rain, snow and hail 36.33 per cent of that time, or twenty months of storm out of the 55.

Air Mail planes travelled with mail 1,123,115 miles, or an average of 84,056 miles a month.

Air Mail planes carried 160,473,600 letters, an average of 2,917,884 letters a month.

Of the 24,988 trips scheduled, only 873 were uncompleted.

"An airplane is a single unit—and no single transportation unit I dare say in all history has approached Air Mail plane efficiency over a period of four years and seven months.

Our Variable Air Conditions

"The air conditions that the Air Mail meets with such extraordinary performance are the most varied to be found on the earth's surface. The records cited were daily schedules on the New York-Washington route, the Chicago-St. Louis route, the Minneapolis and St. Paul-Chicago route, New York-Cleveland and Cleveland-Chicago routes, Chicago-Omaha and eventually Omaha-San Francisco—terrain with three mountain ranges, the Allegheny, the Rocky and the Sierra mountains.

It is right and just to declare that the entire performance of the Air Mail Service stands alone at the peak of all transportation records. It stands as an achievement for the world to aim at, and it stands, too, as the example for the business people of the nation of what is practical in air transit in commercial carrying of goods and passengers. Nothing, in my opinion, that the National Aeronautic Association can advance to convince our people that it is a patriotic duty for them solidly to support the movement to foster, encourage and advance aeronautics can make the impress that these convincing facts of the Air Mail Service must make upon the minds of those who are capable of constructive thought.

"Since the inauguration of the New York-San Francisco service in September, 1920, the Air Mail has flown an average of 137,636 miles with mail every month, or nearly six times the distance around the earth at the equator every thirty days. Phineas Fogg of my boyhood with his fictional trip around the world in 80 days has certainly evaporated and isn't even a myth in reckoning the day by day work of our Air Mail pilots.

"We have planned some startling tests for our American aircraft, polar voyages in our new airships, actual world-circling flights, and on over land and sea route to China. But to me as a business man, such projects pale into insignificance so far as they affect the practical side of affairs alongside the performance of the Air Mail Service. That is actual, it stands solidly on known efficiency; it shows the way to a real utility that can benfit all the people, it demands that the mail must fly everywhere so that our Post Office Department shall be genuinely a department of communications.

"WHAT ARE WE WAITING FOR?"

"What are we waiting for? We have proved the advantages of aerial mail transportation by nearly five years of the hardest kind of test. Why do our industries, our commercial and financial interests, our agriculturists want further to show that the air ocean is a free sea for transit that will give them and all of us the greatest boon yet vouchsafed mankind?

"The Air Mail must cover a network of air lanes between all the important centers of the country, not alone because airplanes annihilate time and distance but because they have attained a standard of scheduled transit that approximates a degree of perfection no other means affords. Give the Air Mail the rate of the star route carriers of two cents a letter and it is entirely within reason to look for the service to operate at a handsome profit after deducting all expenses, capital account, depreciation, etc.

"What are we waiting for? Commercially the airplane is a success. Then why does business hesitate and stand in its own light instead of getting behind the commercial advancement of airplane carrying of goods and passengers and profiting by it? It is perhaps due to our characteristic hesitancy, our ultra conservatism, if you will. The airplane on the mail routes for more than four years has shown us a timidity in feeling that nothing good remains to be discovered as a fallacy. The warranted enthusiasm over the Air Mail record of performance breaks down conservatism as a means of defense. The proof is submitted. Character, capacity, utility, profit are there in the figures of the Air Mail Service—proved by tried for fifty-five months.

"Why content ourselves with the feeble expression, the mail must fly! in the hope that the people and their representatives in the Government will hear it and force the issue? The mail does fly better than 95 per cent across the continent. Business can if it shelves its timidity, make it fly over the entire continent as nearly perfect as human ingenuity can approximate perfection. Business is a heavy toser today and every day that it clings to its conservatism so close that commercial aeronautics remains a puling infant. What are we waiting for?"

Wright Cylinders for Liberty Engine

It is well known that a number of the recent accidents, which have occurred with airplanes equipped with Liberty engines, have been due to failures of the steel cylinder construction. These failures have resulted from the thin welded water jackets rusting through in storage, and also from water leakage, owing to the welds opening in service.

To remedy these defects, the Wright Aeronautical Corp., of Paterson, N. J., has developed a new cylinder construction for Liberty engines similar to that which has been so successfully used on their Model E4 and T2 engines. This construction consists of cylinders in blocks of threes, with aluminum combustion chambers, and both valves and spark plugs seating in aluminum bronze bushings shrunk into position. These cylinders cannot be damaged by rust in storage, nor are they susceptible to water leaks, as the water is carried in the aluminum cylinder blocks. This new type of construction has proved itself very successful, as was shown by the recent Navy endurance test of a Wright Model E4 engine.

Beside overcoming the above mentioned difficulties, the engine is considerably strengthened by the block cylinder construction and the cam boxes. Moreover, the valve gear is completely enclosed, and there is, therefore, no oil leakage on the top of the engine. The original power of the Liberty engine will be increased approximately 10 per cent, and it is perfectly possible to operate the engine for six times the period with the old cylinder construction, without a top overhaul. It is not surprising that an engine designed six years ago, like the Liberty, can be modified in design to considerably better its performance, as a great deal of intensive development work was carried on during this period.

America Holds Most World Records

Eleven records, six of them exceeding accepted world marks, have been officially credited to American aviators by the contest committee of the National Aeronautic Association, Chairman E. P. Lahm announced April 25. These records were all made in a period of twenty days from March 29 to April 17 at Dayton, Ohio, by Army aviators. Five of these records for speed over distances from 2000 to 4000 kilometers are entirely new performances in the history of aviation.

The United States is now credited with fourteen airplane records which have been accepted by the National Aeronautic Association and authenticated to the federation of aeronautic bodies.

The world altitude mark of 34,509.5 ft. made by Lieut. John A. Macready has stood since Sept. 28, 1921. The 100 kilometer speed record and the 200 kilometer speed record, made by Lieut. R. L. Maughan, have not been exceeded since flown Oct. 14, 1922. In these performances Maughan made speeds of 205.31 and 205.94 m.p.h., respectively. The official figures for the eleven new records are as follows:

Airplane Speed Records

Maximum over one kilometer course: 236.587 m.p.h., by Lieut. R. L. Maughan, U.S.A., (March 29) exceeding record of Sadi Lecointe, France, of 233.01 m.p.h.

500 kilometers: 167.807 m.p.h., by Lieut. Alexander Pearson, U.S.A., (March 29) exceeding record of Lieut. Bateler, France, of 114.45 m.p.h.

1000 kilometers: 137.43 m.p.h. by Lieuts. H. R. Harris and Ralph Lockwood, U.S.A., (March 29) exceeding record of Lieut. Carter, France, of 75.81 m.p.h.

1500 kilometers: 114.33 m.p.h., by Lieut. H. R. Harris, U.S.A., (April 17) exceeding record of Bossoutrot and Bernard, France, of 58 m.p.h.

2000 kilometers: 114.22 m.p.h., by Lieut. H. R. Harris, U.S.A., (April 17).

2500 kilometers: 71.83 m.p.h., by Lieuts. John A. Macready and Oakley C. Kelly, U.S.A., (April 16-17).

3000 kilometers: 71.62 m.p.h., by Lieuts. John A. Macready and Oakley C. Kelly, U.S.A. (April 16-17).

3500 kilometers: 71.34 m.p.h., by Lieuts. John A. Macready and Oakley C. Kelly, U.S.A. (April 16-17).

4000 kilometers: 70.77 m.p.h., by Lieuts. John A. Macready and Oakley C. Kelly, U.S.A. (April 16-17).

Airplane Duration Record

By Lieuts. John A. Macready and Oakley C. Kelly, U.S.A. (April 16-17) 36 hr. 4 min. 0.31 sec., exceeding record of Bossontrot and Drouhin, France, of 34 hr. 19 min. 7 sec.

Airplane Distance Record

By Lieuts. John A. Macready and Oakley C. Kelly, U.S.A. (April 16-17) 2616.55 miles, exceeding record of Bossoutrot and Bernard, France, of 1190.04 miles.

World's Record for Weight-Altitude

A new world's record was established by Lieut. Rutledge Irvine, U.S.N., at McCook Field, Dayton, Ohio, during the past week when he ascended to a height of 11,300 ft. with a load of 2405 lb., and an observer in a Douglas torpedo plane. Irvine was in the air for two and one half hours.

According to accounts of the test, it would have been possible to climb to 19,000 ft. if the plane had been equipped with a supercharger. The altitude weight carrying record, lacking somewhat the spectacular features of other records in aviation, is of great importance, and of marked interest in connection with the development of the torpedo planes for service requirements.

The DT used by Lieutenant Irvine was equipped with a reconstructed Liberty engine which had been modified at the Washington Navy Yard.

Civil Service Examination

Airplane Inspector, New York

The United States Civil Service Commission announces an open competitive examination for the position of Airplane Inspector, Vacancies in the Air Service, War Department, New York, N Y, at a salary ranging from $2,000 to $2,500 per annum and future vacancies requiring similar qualifications, at these or higher or lower salaries will be filled from this examination unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer or promotion. Receipt of application to close *May 18, 1923.*

Bonus—Appointees whose services are satisfactory may be allowed the temporary increase granted by Congress of $20 a month.

Citizenship and Sex—All citizens of the United States who meet the requirements, both men and women, may enter this examination, appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles. For the existing vacancies male eligibles are desired.

Duties—Under general supervision, the airplane inspector inspects the raw materials, processes, assemblies, finished parts, and installations which go to make up a complete airplane to determine whether or not the materials, fabrication methods, parts, assemblies, etc., are in accordance with the applicable specifications and drawings. He detects and corrects defects or troubles in airplanes of standard and approved types that would make them unsafe for flight, in some cases including the inspection of service planes prior to flight, and is called upon to prepare reports on such inspection work.

Basis of Ratings—Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience, on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

Prerequisite Requirements—Applicants must show that they have had at least three years of preliminary experience as mechanical draftsman, or as mechanic in a machine or tool shop, or in the construction or repair of automobiles or aircraft, or their mechanical accessories, or as airplane pilot, or, in lieu of such preliminary experience, there may be substituted, proportionately, three full years of formal technical training in high school or a manual training or industrial school, or two full years in a scientific or engineering course of a college or university of recognized standing.

In addition, applicants must show that they have had at least three years of experience as airplane mechanic, airplane assembler, airplane designer, airplane inspector, aeronautical engineer, or foreman or superintendent on airplane construction. For one (and only one) year of this experience, applicants may substitute one year as airplane pilot.

The applicant's experience must have been such as to give him a thorough familiarity with the erection, operation and maintenance of aircraft, and the installation of airplane engines, armament and other equipment. He must be able to read blue prints easily and accurately.

Age—Applicants for this position must have reached their twenty-fifth but not their fiftieth birthday on the date of the examination. Age limits do not apply to persons entitled to preference because of military or naval service.

Retirement—Classified employees who have reached the retirement age and have served fifteen years are entitled to retirement with an annuity. The retirement age for railway mail clerks is 62 years, for mechanics and post office clerks and carriers 65 years and for other 70 years. A deduction of 2½ per cent is made from the monthly salary to provide for this annuity, which will be returned to persons leaving the service before retirement with 4 per cent interest compounded annually.

Photographs—Applicants must submit with their applications their unmounted photograph taken within two years, with their names written thereon. Proofs, tintypes or group photographs will not be accepted. Photographs will not be returned to applicants.

Gothenburg Aero Exhibition

According to the Aeronautical Chamber of Commerce the following European companies have announced that they will participate in the International Aero Exhibition at Gothenburg, Sweden:

Great Britain—Vickers, Ltd. (flying machines) Bristol Aeroplane Co., Ltd., and Armstrong Whitworth Aircraft, Ltd. (both flying machines and motors) and Rolls-Royce, Ltd. (motors).

France—Sous-Secretariat d'Etat de l'Aeronautique (statistics, etc.) Aeroplanes Caudron (flying machines), Henry Potez (flying machines), Société Nieuport-Astra (flying machines and models), Société Louis Bréguet (flying machines and models), Pierre Levasseur (propellers), Etablissements Lioré et Olivier (flying machine), Société Radio-Electrique (radio materials), Aera (Instruments), Paulin-Ratier (propellers), Hanriot (flying machines) and Hispano-Suiza (motors).

Italy—Gianni Caproni (flying machine), Macchi (flying machine), Savoia (flying machine) and Gabardini (flying machine).

Czecho-Slovakia—Army Aircraft Factory (flying machines).

Germany—Junkers Flugzeugwerk A G. (flying machines, motors, models) Dornier- Metallbauten G.m.b.h. (flying machines), Albert Wigand (instruments), Albatros G.m.b.h. (flying machine), Udet (flying machine), Banman & Ledorer (flying materials), Bahnbedarf (flying materials), Baumer Aero (flying machine), Stahlwerk Mark (flying machines and motors), Steffen & Heyman (motors and flying materials), and Telefunken (radio materials).

Sweden—Swedish Army and Navy (flying machines, materials) Swedish Aero A B. (flying machines) A.B.A. Wiklunds Maskin & Velocipedfabrik (motors), Gas Accumulator (wind direction indicator and possibly, air lighthouse), Transit Kompaniet (flying materials), Swedish Wireless Telegraphy A B. (radio materials). Other reported exhibitors are Accumulator A.B. Junger, See Fabriks A B, Swedish Ball Bearing Co, A.B, Mack Meters, Fagersta Bruks A.B, George Hjort & Co, Sanviker Iron Works and others.

The above announced exhibits represent thirty-four types of flying machines and sixteen types of aviation engines. It is expected that there will be no less than fifty different types represented when the exposition opens July 20.

Thompson Silcrome Tulip Valves

In the account of the remarkable 300 hr. endurance test of the Wright E4 engine at full rated horsepower and with standard aviation gasoline, published in our April 30 issue, mention was made of the fact that Wright engineers credited to the new silchrome tulip valves much of the engine's success.

Our readers will be interested to hear that the valves referred to are the new Thompson silcrome tulip valves which have been mentioned in previous issues of AVIATION. They derive their name from Charles E. Thompson, president of the Steel Products Co. of Cleveland, which company during and since the war has produced a large proportion of the aircraft engine valves manufactured in this country. Thompson silchrome valves are made of an alloy which has successfully resisted temperatures far in excess of those met in any aircraft engine.

The Steel Products Co. has actively identified itself with aircraft engine experimentation in this country and is a member of the Aeronautical Chamber of Commerce.

Wright Memorial

A memorial to the honor of Wilbur Wright, a gift to the city of Newcastle, Ind., by the Phi Delta Kappa fraternity, was unveiled on April 15 at Newcastle, the city of his birth.

ARMY AND NAVY AIR NEWS

U. S. Army Air Service

Death of Capt. Walter R. Lawson—Capt. Walter R. Lawson, A.S., Tech. Sergt. Bidwell, Sergt. Wesley H. Rowland, A.S., and Hugh M. Smith, an employee of the Bureau of Standards in Washington, were killed, and Sergt. F. B. Shaw, A.S., U.S.A., was seriously injured when a large bombing plane in which they were flying plunged into the Great Miami river near McCook Field, Dayton, Ohio, April 21.

The plane was en route to Langley Field, Hampton, Va., and was in charge of Capt. Lawson. The accident occurred as the plane was taking off from McCook Field. The big plane was seen to leave the ground and head toward the Herman Avenue bridge. It was flying in the face of a heavy wind and witnesses doubted if it could rise above the structure without hitting it.

Captain Lawson was thought to have realized the danger for he is said to have swung the plane around and started to fly back to the field. Suddenly the plane went into a nose dive and landed in the middle of the river. Most of the crew were out of the ship when it hit the water, for the bodies rose to the surface one by one. All had parachutes on their backs, but were unable to use them on account of the suddenness of the fall.

Brigadier General Mitchell, Assistant Chief of the Air Service, and Major L. W. McIntosh, commandant at McCook Field, were the first air service officers to reach the scene. General Mitchell immediately appointed a board of investigation to determine if the men were in the air in line of duty and what, if any defects, there might have been in the plane.

Captain Lawson and the crew of the bomber had been at McCook Field for several weeks.

General Mitchell, while flying to Bolling Field, Washington, after the accident, dropped flowers from his plane over the spot where the wrecked airplane lay half submerged in the river.

Captain Lawson was a native of Glenn Alter, Ga., and was 30 years of age. He was first appointed to military service in the National Guard of Alabama, as a second lieutenant in Infantry on June 29, 1916, remaining in that service, he was appointed a captain in the U. S. Army on Nov. 1, 1918.

His flying training was begun at Montgomery, Ala., with the 91st Aero Squadron, in 1917. Later he served at Miuola and in France, following which he returned in 1918 and was assigned to Post Field, Okla. Entering the regular service 1920 as a first lieutenant, he was promoted in September, 1920 to a captain.

Captain Lawson had a remarkable record during the World War and received the Distinguished Service Cross for repeated acts of heroism in action near St. Mihiel, France, from July 10 to Sept. 13, 1918. He showed unusual courage in a reconnaissance flight over the enemy lines, when he continued on his mission after being seriously wounded by anti-aircraft fire. On Sept. 13, 1918, while still convalescing from his wounds, he volunteered for a particular dangerous mission requiring a seventy-five kilometer flight over the enemy lines. Because of weather conditions he was forced to fly at a low altitude and was repeatedly fired on by anti-aircraft and machine guns. He successfully accomplished his mission and returned with important information.

When he returned to the United States after the armistice he served as instructor at the School for Aerial Observers, at Post Field, Fort Sill, Okla., from Dec. 1, 1918, to April, 1919. Since November, 1919, he had served continuously at Langley Field. At the time of his death he was commanding the Twentieth Bombing Squadron.

Hugh M. Smith was an employee of the Bureau of Standards in Washington, D. C., specializing in illuminating engineering, searchlight and lighting for airplanes. He left Washington by airplane for McCook Field for air travel experience and to cooperate with officers there on night flying plans. Mr. Smith was about 30 years of age and was graduated from the University of Michigan in 1916 in electrical engineering. He had been in Washington several years.

* * *

Army Orders—Capt. George H. Peabody, A.S., from Crissy Field, Calif., to University of California as assistant professor in military science and tactics.

Resignation of First Lieut. Alfred Baxter Baker, A.S., has been accepted by the President.

Tech. Sergt. George D. Lutherland from 21st Airship Group, Scott Field, Ill., to 57th Service Sq. Selfridge Field, Mich.

Tech. Sergt. Otto H. Nelson, from 57th Service Sq., Selfridge Field, Mich., to 21st Airship Group, Scott Field, Ill.

Among the names of officers relieved from duty as students at Army War College and detailed as members of General Staff Corps is that of Maj. Gerald C. Brant, A.S.

First Lieut. Solomon L. Van Meter, jr., A.S., from Hawaiian Dept. to Mitchel Field, N. Y.

* * *

Air Officers Finish Engineering Course—Of the thirteen officers who recently completed a course of instruction at the Engineering School, McCook Field, eleven have been assigned to duty at the Fairfield Air Intermediate Depot for six weeks' study of actual repair depot conditions through a supplementary course in production overhaul of service equipment. During their stay at Fairfield, Ohio, they will be placed in the various departments of the depot. The officers taking this instruction are: First Lts. H. L. Clark, M. S. Fairchild, W. J. Hanlon, M. McCune, D. M. Myers, W. H. Reid, P. E. Skanse, H. F. Whitely, and 2d Lts. F. C. Fishback, E. C. Langmead and D. W. Norwood. Of the remaining two officers Lt. V. H. Strahm has been assigned to the Middletown Air Intermediate Depot and Lt. D. F. Stace to Selfridge Field, Mt. Clemens, Mich., where he will participate in the spring maneuvers.

* * *

Airship A4 Overhauled—The Engineering Department at Scott Field, Ill., is taking advantage of the bad weather to improve the condition of the Airship A4. A new Rolls Royce, 6 cylinder motor is being installed, with a four-blade propeller similar to the one used on the Marlion airship. The new propeller will increase the speed of the ship and make far smoother flying.

The Engineering Department is also making improvements on the Airship D2. Room for four more passengers was made by cutting out part of an unused section of the car and building a new cockpit.

* * *

High Toned Photographs—It is now possible to make photographs from any elevation. Tests last year resulted in good clear negatives from an altitude of 24,800 ft., and it is proposed to use cameras at still higher elevations this year. In the course of its experimental work, the Engineering Division of the Air Service at McCook Field photographed over 5000 square miles in 1922, all of which has been put to good practical use by the Geological Survey preparing small scale maps from the negatives.

Clark Field, P. I.—At Clark Field, Pampanga, P. I., construction of a post exchange and recreation hall is underway. Need of this building has long been realized, but circumstances have prevented actual accomplishment.

Since the arrival of the Air Service in the islands, construction of hangars and other essential buildings for housing of troops has taken all their time. When completed the buildings will do much toward relieving the monotony of post life.

U. S. Naval Aviation

Aircraft Squadrons, Scouting Fleet—The six F5L's with Sandpiper and Teal arrived at Key West, April 20 from Guantanamo enroute to Hampton Roads, returning from winter maneuvers with the combined fleets. The U.S.S. Wright proceeded to Pensacola to carry back the crews of planes being transferred to that Station.

Torpedo and Bombing Plane Squadron 1 completed the trip to Hampton Roads, the last plane arriving April 20. The main body of this squadron made the trip in five days. Other planes were temporarily delayed by minor troubles. One plane was hoisted in for the last part of the trip rather than shift engine. All others completed the flight. One plane of this squadron is a DT which made the trip from Hampton Roads to Key West alone in three days when it was taken to join the Squadron.

Lieut.-Comdr. H. T. Bartlett, Commanding Officer of the squadron, continued on to Washington with two PT planes for conference with Bureau officials.

* * *

Aircraft Squadrons, Battle Fleet—On April 5, Lieutenant Harper and Lieutenant Sehnr started an endurance test flight in a DT plane at 5 30 a. m. This plane was equipped with a torpedo gas tank of one hundred and sixty gallons capacity. The plane was landed at 5-45 p. m. on account of fog and darkness. The plane had stayed in the air twelve hours and fifteen minutes and there were fifteen gallons of gas remaining in the tank when the flight was finished.

* * *

MO1 Returned to Cleveland for Refinements—The MO1 spotting and observation plane which has been under test at Anacostia for several months past was returned by air during the week to the factory of the Glenn L. Martin Co. Minor changes will be made in the ship in order to improve its qualities of maneuverability and control.

* * *

Reconstructed Liberty Develops 470 hp.—Preliminary bench runs of the Navy Aeronautics reconstructed Liberty engine at the Naval Aircraft Factory developed 470 hp. of this engine at 1800 revolutions. A contract for forty of these engines has been let.

* * *

Naval Air Station, Pensacola, Fla.—About May 10 a special class for landplane instruction will be started. This will be composed of twelve station officers. After the preliminary instruction, the class will be divided for the purpose of instruction in combat training and spotting training.

In connection with his course of instruction, Lieutenant Patterson made an observer's flight from this station to St. Petersburg, Fla., and return on April 3 and 4, navigating by means of Dead Reckoning and Sextant. The course followed caused the plane to be out of sight of land for a distance of approximately one hundred and fifty miles on each trip.

Two sights were taken on the trip over, the first a meridan altitude which checked up with the D.R. position. The second for line of position at 2 30 p. m. which gave an "A" of 2 miles. Taking this position as correct, a landfall was made, one hour and fifteen minutes later, one and one-half miles in error.

On the return trip, a meridian altitude was taken which again checked with the D.R. position. At 1 00 p. m. a sight of the sun was taken and a radio bearing received from this station. Both were four miles off from the D.R. position, but on opposite sides. At this time the plane, (an F5L type) was heading directly from St. Petersburg for Pensacola. Due to rain squalls, it was decided to head for Cape San Blas and the D.R. position was used in laying out the course. Cape San Blas was picked up an hour and fifteen minutes later and would have been passed four miles on the beam on the same side as the sight was shown to be off the D.R. position. From this it is to be supposed that had the position, as given by the sight, been used, Cape San Blas would have been picked up Dead Ahead. There was considerable static at the time the radio compass bearing was taken and the operator later said that considerable difficulty was had in getting the bearing. The U.S. Navy Drift Indicator was used whenever possible on the flight to secure the wind direction and velocity and the results were more than satisfactory.

Due to the short time allowed in Lieutenant Patterson's course for work with the sextant (less than ten hours) the results from this flight are all the more remarkable.

It is planned to send at least three students of Class XVII on navigational flights of this character and from the information found to draw up an outline of an additional course in Air Navigation for use at this station.

* *

Pensacola to Washington in One Day by Navy DH—Leaving Pensacola at 6 a. m. Tuesday morning April 17, in a DH-4B for Washington, Lieut.-Comdr. C. P. Mason and Lieut. H. J. Norton, USMC, made the 1000 miles in ten hours flying time and arrived in Washington at 6 p. m. the same day. Four hours of the flight were made through rain. One stop was made enroute at Columbia, S. C. where the plane was refueled with commercial gas. Lieutenant Commander Mason came to Washington to take up with the Bureau of Aeronautics important matters related to training activities at the Air Station at Pensacola.

Official Photo U. S. Navy

The DH4B on which Lt. Comdr. C. P. Mason (in medallion) and Lt. H. J. Norton flew in a day from Pensacola to Washington, D. C.

Personals—Capt. Henry C. Mustin, Assistant Chief of the Bureau of Aeronautics, who has been seriously ill in the Naval Hospital in Washington for the past three months, has so much improved that he was able to go to his home on Thursday.

Rear Admiral Moffett returned to his duties in the Bureau on Friday, after being confined to his home with a severe attack of la grippe for the past week.

Lieut.-Col. T. C. Turner, headquarters aviation officer, U.S. Marine Corps has recently completed an inspection tour of aviation units in San Domingo and Haiti. On his return to the Department, Colonel Turner expressed himself as very much pleased with conditions existing in these units.

Comdr. H. C. Richardson, U.S.N., has recently returned to the Naval Aircraft Factory in Philadelphia, from London, where he has been on duty in connection with the Commission for the Adjustment of Foreign Claims.

Comdr. Kenneth Whiting, U.S.N., executive officer of the U.S.S. Langley, gave an interesting account of the work that was done by the aircraft carrier in the Fleet maneuvers in Panama, before the officers in the Bureau of Aeronautics on Monday last. The Langley was called upon to perform tactical missions by the Commander-in-Chief and acquitted herself with credit.

On April 19, Comdr. W. W. Webster, Lieut. Comdr. M. A. Mitscher, Lieut. Comdr. H. B. Cecil from the Bureau of Aeronautics, and Lieut. A. W. Gorton from the Anacostia Air Station went to the Air Station at Lakehurst in two DH4B airplanes for the purpose of getting information as to the progress of construction of ZR1 and the training of rigid airship students, and for trying out the landing fields at that Station.

Everything is progressing remarkably well at Lakehurst, and it is fully expected that the ZR1 will be ready to take the air sometime during the latter part of July. The landing field is in good condition at the present time, the two adjoining fields of about 1000 ft. in length each, affords an entirely satisfactory landing place for any direction of wind. The surface is sandy and is fairly well packed at the present time. It is probable that at other seasons loose sand may be blown into the area and that it will be less satisfactory.

* * *

Smoke Screens Laid by Naval Aircraft—The possibility of laying smoke screens from aircraft has recently been under investigation at the Naval Air Station, Anacostia, D. C., and some very interesting results were obtained from experiments which point to the practicability of naval planes performing efficient duty in this manner. The smoke screen is created by chemical reaction and is projected from the exhaust line of the engine. One of the tests over the Anacostia River blanketed the Army War College in a heavy cloud of smoke. As a whole the experiments point the way to interesting and valuable developments in this line.

* * *

Relocation of Step On F5L—The Bureau has authorized the relocation of the step on an F5L at Hampton Roads as an experiment to facilitate easier take-off. The step in this particular case is to be shifted two feet farther aft as the result of model basin tests which indicate an easier take-off with the new step location. The depth of the step will remain the same. If the full scale experiments bear out the model basin results the steps on the modified F5L's (PN7s) two of which are now under construction at the Aircraft Factory, will be similarly located.

* * *

18 ft. Propeller for ZR1 Passes Test—The geared drive propeller which will be used on four of the Packard engines for the ZR1 has successfully passed tests on the whirling stand at McCook Field. The power plant installation of the ZR1 will be equipped with four geared drive and two direct drive propellers. The former are designed to absorb 300 hp. The propeller which has been under test is 18 ft. in diameter and is constructed of wood.

Martin Bombers Fly Across Continent—Under the command of Maj. R. S. Geiger, U. S. Marine Corps, four Martin bombers started from San Diego on Thursday, April 19, on a cross continent flight to Quantico, Va. The flight will follow the southern route through El Paso, San Antonio, New Orleans, Columbia, S. C., and thence northward to Quantico. The first report received from the planes was from Yuma, Ariz. In addition to Major Geiger the following officers are making the flight as first and second pilots, Captains Mulcahy, Page, Davis, Woods and Presley and Lieutenants Hall and Hallenberg.

Martin Bombers, NBS type, four of which are being flown from San Diego to Quantico, Va., by U. S. Marine Corps pilots

Flying by way of Yuma and Tucson, Ariz., the four bombers reached El Paso on April 21, Kelly Field, Tex., on the 23rd, and Ellington Field, Dallas, Tex., on the 24th, at 5 30 p. m. On April 30 three of the four ships arrived at Bolling Field, D. C., the fourth machine having made a forced landing at Harper's Ferry, W. Va. Otherwise every hop was made on schedule time.

* * *

New Design for Training Plane—Serious consideration is being given to new designs of training planes for the training of students. A new type will take the place of the N9 of which the supply is nearly exhausted. Several types have recently been under investigation, and all will be given a thorough work out at Pensacola under actual conditions of training.

* * *

Balloon Plotting Boards—A standard type of balloon plotting board for obtaining upper air data will be adopted as the result of tests being conducted at the present time by the Aerological Section of the Bureau. Two types were under trial during the past week.

Coming Aeronautical Events

AMERICAN

May 30 — *Fifth Annual Aircraft Exhibition, Flying Club of Baltimore, Logan Field, Dundalk, Md.*

June or July — *National Balloon Race.*

Oct. 13 — *National Airplane Races, St. Louis, Mo.*

Late Fall — *Curtiss Marine Flying Trophy Race.*

FOREIGN

May 13 — *Grand Prix (Balloons), Paris, France.*

June 25-30 — *International Aero Congress, London.*

July 20- — *International Aero Exhibition, Gothenburg, Sweden.*

Aug. 12 — *Sailplane Meet, Rhoen, Germany.*

Aug. 3-31 — *Sailplane Meet, Vauville, near Cherbourg, France.*

Aug. 5-26 — *Sailplane Meet, Camaret, France.*

Sept. 28 — *Schneider Maritime Aviation Trophy Race, Cowes, Isle of Wight, England.*

Dec. 1 — *Entries close for French Engine competition.*

Naval Orders from April 11 to April 16—Ch Carp Francis J Wilson, U S N —detached Inspector of Naval Aircraft, Davis Douglas Co, Santa Monica, Calif , to U S S Aroostook

Pay Clerk, Oscar W F Hicks, U S N —Detached Naval Air Station, Lakehurst, N J , to U S S Orion.

Pay Clerk Walter A Hill, U S N —Detached U S S Utah, to Naval Aircraft Factory, Navy Yard, Philadelphia, Pa.

Pay Clerk Carl A. Posse—Detached U S S Wyoming, to Naval Air Station, Lakehurst, N J

Lt Comdr George C Rhoades, U.S.N., Detached U.S.S. Langley, to U S S Antares.

Lt. (jg) Charles E Clark, U S N., Detached U S S. Langley, to U S S Wyoming

Lt Comdr Robert G Davis, U S N ; Detached School of Aviation Medicine Mitchell Field, Mineola, L. I., N Y ; to U S S. Langley

Lt. Comdr Andre E. Lee (MC) U S N , Detached U S S Prometheus, to U S S Aroostook.

Lieut William D Davis (MC), U.S.N., Detached U.S.S Aroostook; to U S S Prometheus

Lieut. John A Marsh (MC), U S N , Detached U S S Wright, to Dest Squadrons, Scouting Fleet

Lieut Page O Northington (MC) U.S.N ; Detached Naval Air Station, Pensacola, Fla , to U S S Wright

Lieut Stuart J Trowbridge, U S N ; Detached School of Aviation Medicine, Mitchell Field, Mineola, L. I., N. Y.; to Naval Air Station, San Diego

Lieut Grover C Wilson (MC) U S N., Detached School of Aviation Medicine, Mitchell Field, Mineola, L I., N. Y.; to Marine Observation Squadron Two First Brigade U S Marine, Haiti

Lt (jg) Joseph I Brooks (ChC), Detached Submarine Base Hampton Roads, Va., to U.S.S. Wright.

Ens Alford J Williams, U S N., Detached Naval Air Station Hampton Roads, Va ; to Naval Air Station, Anacostia, D C.

Lt Comdr Frederick Ceres, (MC) U S N., Detached School of Aviation Medicine, Mitchell Field, Mineola, L. I., N Y., to Naval Air Station, San Diego, Calif.

Lieut Clinton G DeFiney (MC), U.S.N., Detached School of Aviation Medicine Mitchell Field Mineola, L. I., N Y., to Naval Air Station, Pensacola, Fla

Lieut George T Dill (MC) U S N., Detached School of Aviation Medicine Mitchell Field, Mineola, L. I., N Y.; to Naval Air Station, Pensacola, Fla.

Lieut John L. Farmer (MC) U S N , Detached School of Aviation Medicine, Mitchell Field, Mineola, L I., N Y.; to U S S. Langley

Lieut Bertram Groeshack (MC) U S N.; Detached School of Aviation Medicine, Mitchell Field, Mineola, L I N Y , to Marine Barracks, Quantico, Va.

Lieut Louis E Mueller (MC) U S N , Detached School of Aviation Medicine, Mitchell Field, Mineola, L I., N Y.; to Naval Air Station Lakehurst, N J

Gun Ferdinand H Ehlbeck, U.S.N., Detached U.S.S Langley, to U.S.S Mercy for treatment.

Pay Clk William H Hopkins, U S N , Detached Submarine Base SanPedro, Calif., to Naval Air Station, San Diego, Calif

Pay Clk Chester W Utterback, U S N., Detached Naval Air Station, San Diego, Calif., to U S S Nevada

Lieut Jacob H Kyger (SC) U S N.; Detached Rec Ship New York, N. Y. to Naval Aircraft Factory, Navy Yard, Philadelphia, Pa

Pay Clk Athens C Shadburn U S N Detached Naval Air Station, Hampton Roads, Va., to Naval Station Tutuila, Samoa

* * *

550 hp Model T Wright Engine Tested in DT Plane—Preliminary flight tests of a DT-4 plane equipped with a 550 hp Model T Wright engine were carried out during the week at the Aircraft Factory in Philadelphia. The DT4 plane differs from the DT2 only in respect to the power plant equipment. These tests will be continued to determine the relative advantages of the higher powered engine for torpedo plane use as compared with the increased weight of accessories necessitated

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